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## HARBOR ISLANDS STUDY

SUPPORT Paper - TRANSPORTATION

## for Topic-Aspect Matrix

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Transportation - GENERAL

1. The existing planning process in the Boston Region often allows current highway aid programs and cost restraints to take precedence over long-range and broader land-use considerations. (This is indicated in the record of controversy over the process of planning for the Southeast Expressway, the Inner Belt, the Mass. Turnpike Extension, the Southwest Expressway, and the MDC Charlesgate Connector.)
2. The existing regional transportation system of all modes - by some deficiencies, excesses and misallocations - puts unnecessary constraints on efficient and equitable land-use planning, most immediately in the Boston core city, but in the long run in the entire region. The most obvious of these unnecessary constraints are created by over-concentration of highway development as compared to mass transit development (cf. "Transportation Facts for the Boston Region," B.R.A., 1968-'69 edition.)
3. The growth of the regional road system has induced, and now induces, more traffic in certain directions and at certain time periods than the system was designed to accommodate; highway development here is caught in the familiar expectation-demand-construction-inducement spiral.
4. Political fragmentation, limitations and inconsistencies in existing public funding programs, capital inertia, etc., hinder large-scale region-wide experimentation; however, experimentation is possible and still useful within a restricted geographical area.
  - a.)
5. The Boston Region appears to want a core. (See B.R.A. Central Business District Plan, General Plan 1964, etc.)
  - b.) Easy movement to and from the core, and circulation within, are required for the support - and survival - of those functions that are unique to the core; thus,
  - c.) the core transportation system - roads and mass transit - and its links outside are of concern not only to its users but to the regional population as a whole, and
  - d.) the costs of the core transportation system must be borne in part by the region as a whole, not just by the users.
6. There is a growing body of evidence that demonstrates how severely the poor are being overcharged for transportation throughout the country. (See Meyer, Kain and Wohl, The Urban Transportation Problem; Wilfred Owen, The Metropolitan Transportation Problem; etc.)



Transportation - GENERAL, contd.

- 7.) An opportunity exists in the Harbor Islands project to meet these challenges.
8. What still remains after the community is built will be a major traffic problem - far greater than exists already - on and around Columbia Point, along the Southeast Expressway and Morrissey Blvd., around Neponset Circle and North Quincy. The development of the islands should not begin unless and until traffic in this area generated by that development can be accomodated.



## Transportation - PHYSICAL

### 1. Land Access

See map.

Main access from Columbia Point and Morrissey Blvd. (Columbia Circle). This must be provided by a major road through Columbia Point to the first bridge.

Secondary access from Morrissey Blvd. (the Wollaston Beach section) through Squantum to Moon Head. This would be restricted to pleasure vehicles and busses only. Since the residents of the Squantum area can be expected to oppose vehemently any development of the island, all bridge-road capacity needs have been calculated on the basis of one access only - that of Columbia Point - and the Squantum access can be regarded as an "extra."

ALTERNATIVE PLAN: Squantum access will be needed. This would be the case if it were determined, for example, that a significant number of residents would be driving to work through Neponset Circle or North Quincy. If this number were high enough, such as one third of the total estimated peak flow, consider leaving one lane off bridge-causeway links, or dropping the rapid transit plan.

Major immediate constraint: opposition of Squantum residents, City of Quincy, MDC, conservationists, ornithologists.

Major future constraint: traffic added to secondary roads in Neponset-North Quincy area.

### 2. Construction and Vehicles

See preliminary cost estimates for construction, vehicles and parking.

Effect of concepts on building and landscaping:

- a. separation of vehicle-pedestrian traffic
- b. less garage-parking space, and road needs
- c. more footpath and moving sidewalk needs



## Transportation - SOCIAL

### 1. User Preferences

- a. preference for automobile
- b. need to accomodate those who do not drive (elderly, infirm, poor, youth) by mass transit
- c. speed (rapid transit at least; not just busses)

### 2. Effect on Community

- a. less driving, combined with easier accessibility to "trip ends" on foot might contribute to more interaction.
- b. more public use of mass transportation (transit, bus, mini-bus) might contribute to more interaction
- c. variety of opportunities allows more heterogeneity of incomes, age

### 3. Effect on Region

more efficient use of land; possibly, faster circulation of people



Transportation - ECONOMIC

1. Costs

a. See detailed reports.

b. NOTE: due to proximity of island to downtown, total household costs of journey to core should be less than with suburban developments:

Assume two households - Household A, on Harbor Islands; and Household B, in Milton (about four miles from core). Each has one car, husband travels to work at Prudential Center, has three children in local schools (walk to school), wife shops locally but takes subway-bus or bums rides elsewhere.

Hshld.	<u>Cost of Car Use (Annual)</u>		<u>Cost of Transit Use (Annual)</u>	
(Harbor Islands)	A	Depreciation	\$ 700	(Note: 35 minutes to downtown)
		Insurance, Excise	200	250 jnys. to work
		Gas, oil	200	@ .50 each 125
		Repairs	<u>200</u>	150 trips (wife) 75
			1,300	300 trips (children) <u>150</u> 350
				TOTAL: \$1,650
(Milton)	B	Depreciation	750	(Note: 45-50 min. to downtown)
		Insurance, excise	200	150 trips by wife
		Gas, oil	250	@ .50 each 75
		Repairs	250	300 trips by children 150
		Parking (\$2/day)	<u>500</u>	
			1,950	225
				TOTAL: \$2,175

2. Job Opportunities

Generally, Harbor Islands would be more restricted in access to job opportunities than other parts of Boston Region, except for that part of the island community's population that does not drive. For that segment, and for those residents working already near mass transit line to core, Harbor Islands would be generally superior in access to jobs. It is expected that most employed residents will be able to take rapid transit to work.

3. Financing

See detailed report.



Transportation - GOVERNMENT

1. Jurisdiction

Existing public funding programs, if applicable to this development, would require that funds be channeled through a chartered municipality or through the state.

2. Administration

Administration of funds and operations might be done by an island development corporation, which could give franchises to, say, the MBTA to provide transportation.



## Rapid Transit Assumptions

1. a. Massachusetts Bay Transportation Authority will be agreeable to providing mass transit for 50,000 persons on the Islands, 15,000 at Columbia Point and 20,000 at the University of Massachusetts (presuming it is located at Columbia Point.)  
b. Should a fair actually materialize, rapid transit extensions in the area are virtually assured.
2. Most of the residents with employment off of the islands will be working with C.B.D.
3. City of Boston will in the near future lend support to and encourage serious proposals to alleviate automobile traffic and expense in the core.
4. Even those people on the Islands who own cars will for the most part chose not to drive those cars into the C.B.D. to places of employment given the alternative of convenient rapid transit facilities.
5. Roads, bridges, and causeways will be constructed connecting Columbia Circle to Thompson's Island, Thompson to Spectacle Island, and Spectacle to Long Island.
6. Spectacle Island will be used only for recreational purposes and for that reason it will have no rapid transit stop.



## Rapid Transit Proposals

### Proposed:

That the M.B.T.A. provide a rapid transit extension of service connecting the present Columbia Station with Long Island on rights-of-way included in the main road and bridge construction proposed for the Island development. The following three alternatives are submitted:

#### Alternative #1:

Provisions of rapid transit shuttle service between Long Island and Columbia Station. The latter terminal should be constructed to permit direct access to in-bound trains on the present Harvard-Ashmont line. This would facilitate the operation of the two lines on a synchronous schedule during the morning rush hour. In addition to the terminals, stations should be located at the U. Mass./ Boston and at Thompson's Island.

#### Alternative #2:

Provision of rapid transit service between South Station area and Long Island utilizing present surface trackage from South Station to Columbia Station and new construction to Long Island.

In addition to the terminal at the proposed South Station transportation complex which will serve both the C.B.D. and the proposed stadium and arena stops would be located at the Roxbury/South Boston meat processing and packaging facilities, Columbia Station, U. Mass./ Boston, Thompson's Island and Long Island.

#### Alternative #3:

Provision of a rapid transit extension branching from the existing Harvard-Ashmont line before Columbia Station with stops at U. Mass./ Boston, Thompson's Island and terminal facilities at Long Island.

ALT #4 Components has services on own right of way with interchanges onto subway at Columbia station.



URBAN SYSTEMS LAB

TRANSPORTATION -- Physical Aspects

1. There will be a greater demand for highways, public transportation, and new modes of transportation in the next thirty years.

Ganz, Alexander, Emerging Patterns of Urban Growth and Travel. (Cambridge: MIT Dept. of City and Regional Planning), 1968.

2. The phenomenon of 'urban sprawl', a decentralization of the central city in terms of population, employment, and geography, is both a cause and an effect of highway construction.

Ganz, Emerging Patterns.

Meyer, J. R.; Kain, J. F.; and Wohl, M., The Urban Transportation Problem. (Cambridge: Harvard University Press), 1965.

3. The construction of an urban highway alleviates traffic congestion on all parallel routes in its vicinity.

Meyer, Urban Transportation Problem.

4. Improvements in public transportation and development of new systems will alleviate urban highway congestion.

Fitch, Lyle C. and Associates, Urban Transportation and Public Policy. (San Francisco: Chandler Publishing Company), 1964, pp. 170-208.



## PHYSICAL

- (1) "Cleveland's High Speed Line Holds Idea for Hub"  
— Boston Globe, Sept 29, 1968.
- (2) A survey of intra-city systems in use today or in some stage of development.  
— Brian Richards, New Movement in Cities, 1966.
- (3) Compendia of technical considerations & requirements for a dual mode system.  
— Bi-modal Urban Transportation System Study, Vol. II, Cornell Aeronautical Lab, March 1968.
- (4) Data on hovercraft
  - (a) Information on the British SR.N4 from Bell Aerosystems
  - (b) The Oakland Demonstration Project
- (5) Transit Expressway Experiment proves successful.  
MPC Corp, Pittsburgh, Pa, Feb 20, 1967.
- (6) Policy & Procedures for Urban Highway Planning  
— "Comprehensive Urban Transportation Study Methods" Ralph A. Mayer, ASCE, Jl. of the Highway Division, Dec 1, 1965.



URBAN SYSTEMS LAB

TRANSPORTATION - Social Aspects

1. User preference of one mode over another is in part a function of mode quality and can be manipulated.

Editors of Fortune, The Exploding Metropolis.  
(Garden City, New York: Doubleday and Co., Inc.),  
1958, pp. 79-80.

Mass Transportation Commission Commonwealth of  
Massachusetts, Mass Transportation in Massachusetts.  
July 1964, pp. 96-114.

Abt Associates Inc., Qualitative Aspects of Urban  
Personal Travel Demand. August 1968.

2. The interaction of modes of transportation has an effect on the community.

- a. in residential areas

Stein, Clarence S., Towards New Towns For America.  
(Cambridge, MIT Press), 1966, pp. 41-44.

- b. in shopping districts

Traffic in Towns, Reports of the Steering Group  
and Working Group appointed by the Minister of  
Transport, London: 1963.

3. The combination of present trends in the development of highways and public transportation and trends in decentralization of the central city will put the urban poor at another disadvantage.

Owen, Winfred, The Metropolitan Transportation Problem.  
(Washington D.C.: The Brookings Institution)  
Revised ed., 1966.

Ganz, Emerging Patterns.



## SOCIAL

- (1) Relations between Trip Purpose and Family Income, Vehicle Ownership, Land Use, Distance from CBD, Length of Trip, Mode, Time of Day  
 — Martin, Mennett, & Bone, Principles & Techniques of Predicting Future Demand for Urban Area Transportation, Aug 1967.  
 (This book summarizes much work done in urban transportation up to 1960. Original sources include the regional transportation studies such as those from Chicago, Pittsburgh, and Detroit.)
- (2) Present & future trends of Personal & Vehicular Travel as a function of Trip Purpose.  
 — Ibid.
- (3) Objectives of the transportation system proposed for Boston to 1990.  
 — Recommended Highway & Transit Plan, EMRPP, 1969.
- (4) Depending on trends existing in an area before a highway is built, the zone of influence of that new highway may vary from 200 to 700 feet. This influence can be identified within the zone, except for the land within 50' of the highway.  
 — Study of the Effect, if Any, on an Urban Freeway Upon Residential Communities Adjacent to the Right of Way, David C. Colony, 1968.
- (5) Description of traffic flows, distribution, & flow characteristics.  
 — Future Urban Transportation Systems: Desired Characteristics, SRI, May 1967.
- (6) "Inequities in the provision of services to certain population groups constitutes a principal urban transportation problem."  
 — Richard J. America, Future Urban Transportation Systems - Desired Characteristics, SRI, May 1967.
- (7) The social role of highways is to be the subject of a hearing in Washington.  
Boston Globe, Dec. 8, 1968.
- (8) "Roxbury — 128 Bus Aided Fewer than 100 to Jobs,"  
 — Boston Globe, Mar 4, 1969.
- (9) "Cars Beat Roxbury Job Buses"  
 — Boston Globe, Dec 3, 1968.



## SOCIAL (2)

(10) Trip production & attraction rates, average trip lengths, computed for the Boston region.

Wilbur Smith & Associates, "Comprehensive Traffic & Transportation Inventory", 1963.

(11) Tradeoff between travel time & travel cost.

Wilbur Smith & Assoc., A Method for Estimating the Impact of Travel Time or Cost Changes on Diversion of Car Drivers to Transit: Work Travel to Central Business District, February 1968.



## Economic

- (1) "Hub's Woes Hit Frisco's Rapid Transit,"  
— Boston Globe, ? 1968.
- (2) "An Rx for MBTA: Yankee Ingenuity"  
— Boston Herald Traveler, Dec. 5, 1968.
- (3) "MBTA's Master Plan Nears \$1 Billion"  
— Boston Globe, Jan 30, 1969.
- (4) Cost estimate of proposed dual-mode system.  
— Bi-modal Urban Transportation System Study: Vol II, Cornell Aeronautical Library, Mar 1968.
- (5) Costs of proposed highway, MBTA master plans.  
— Recommended Highway & Transit Plan, EMRP, 1969.
- (6) Financing urban transportation; discussion of user costs.  
"Financing", "Prices and Costs in Urban Transportation  
Financing", "Dynamics of Urban Transportation, 1962.
- (7) "Comparison of Costs & Benefits for Major Transportation Alternatives", "Systems Analysis of Urban Transportation, paper by J.L. Sorensen, Jan 1969.



## GOVERNMENTAL

- 1 THE ADMINISTRATIVE SYSTEMS FOR URBAN TRANSPORTATION SUFFER FROM FRAGMENTATION

FITCH, pp 16-18.

FAGIN, HENRY, "IMPROVING MOBILITY WITHIN THE METROPOLIS," PROCEEDINGS OF THE ACADEMY OF POLITICAL SCIENCE, MAY 1960  
—, "FUTURE URBAN TRANSPORTATION SYSTEMS: DESIRED CHARACTERISTICS," SRI, MAY 1967.

- 2 THE FINANCIAL CONDITION OF PUBLIC TRANSPORTATION SYSTEMS IS TENUOUS  
RAINVILLE, WALTER S., JR., "TRANSIT FACES THE FUTURE," TRAFFIC QUARTERLY, APRIL 1960.

